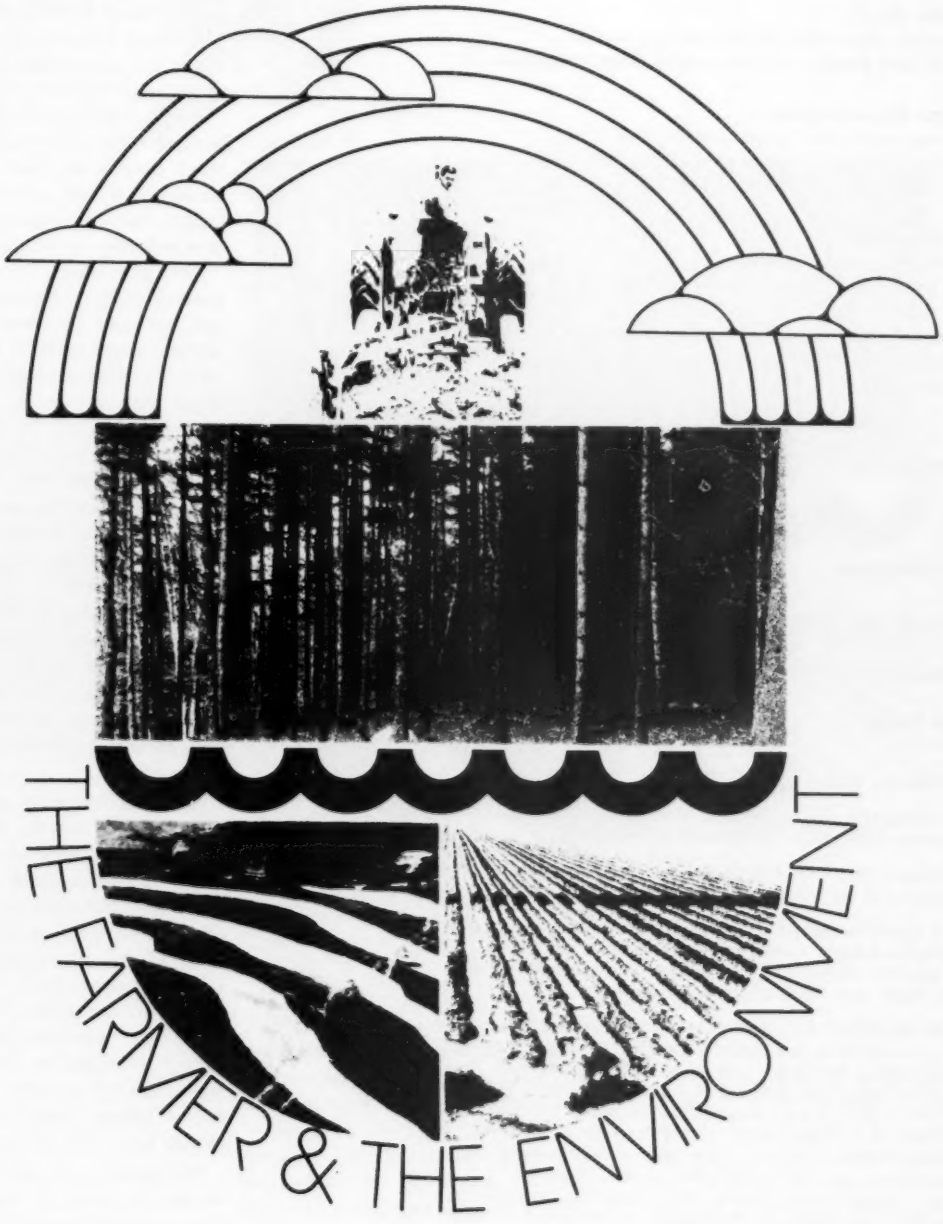
THE FARM INDEX

U.S. Department of Agriculture December 1975



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Outlook

Last month's National Agricultural Outlook Conference in the Nation's Capital was a welcome event for both farmers and consumers. Though the news wasn't the best, it was a lot better than we expected 6 months ago.

Farmers were told that their gross receipts in the 1975/76 marketing year could mount by as much as $10 billion —up from last year's $91 billion. Moreover, the percentage gain in net income might be even greater.

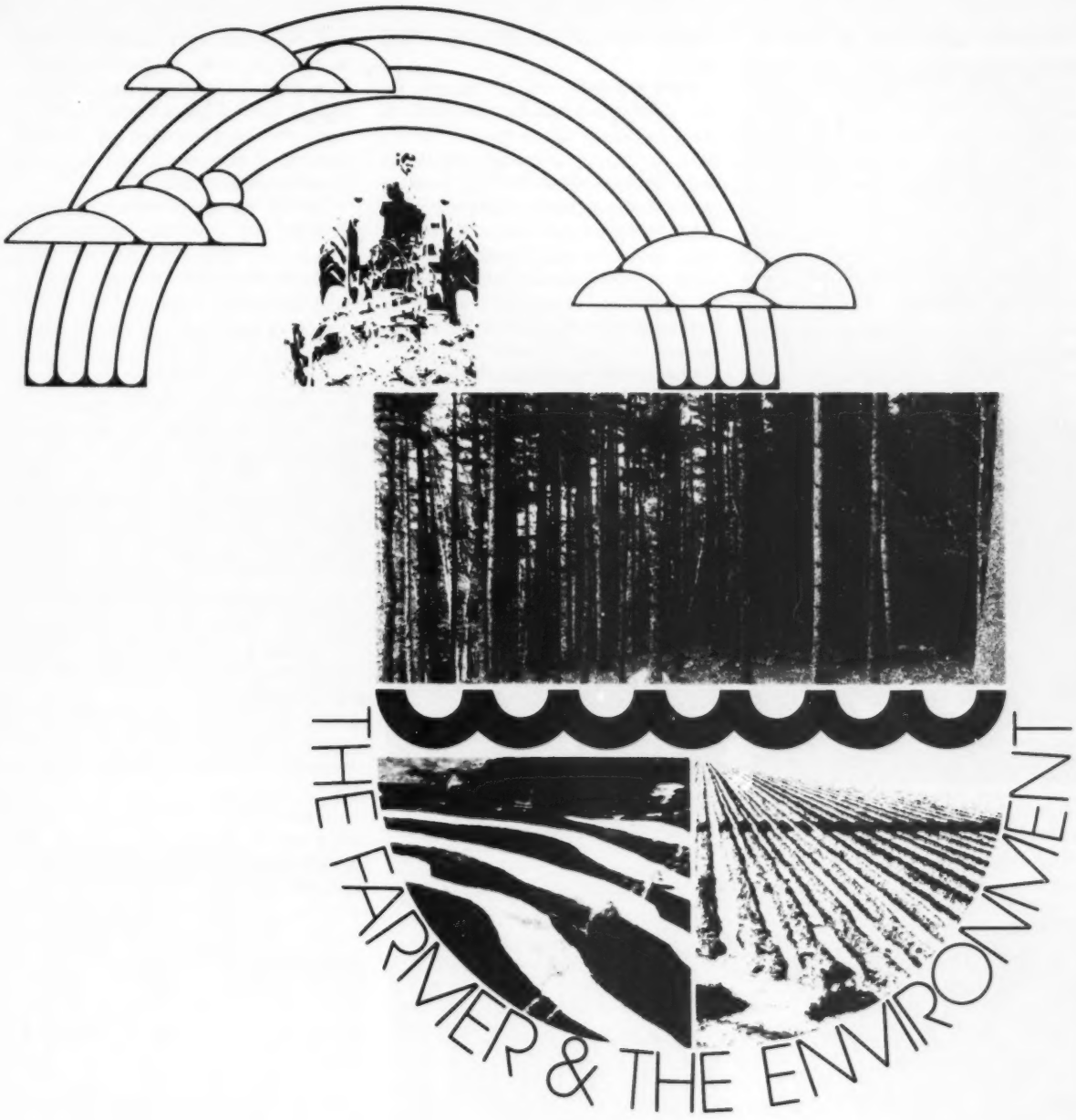
The bin-busting crops of 1975 will make the big difference, although livestock output will soon be on the rebound and will shore up the cash ledger. Spiraling costs of farm production will start to moderate.

Foreign markets, usually taking 20-25 percent of the American farmer's output, are again in there bidding for the bumper crops of 1975. Exports in fiscal 1976 are predicted about 15 percent larger than last year's volume. Dollar-wise, they're apt to rise around $1 billion from 1974/75's $21.6 billion. Our imports this fiscal year will advance also, but the balance sheet will once again read in our favor, even exceeding the high export net of $12 billion recorded in 1974/75.

Despite the grain-buying spree of the Russians, our supplies of grains and soybeans in the 1975/76 marketing year will suffice to cover increases in domestic use, plus increases in exports, plus increases in carryover stocks at year's end.

Situation for grain production was taking shape months back. However, the livestock scene could have gone either way. Now, there are sure signs of recovery. One example, the inventory of cattle on feed on October 1 was up from a year earlier for the first time since October 1973. Hog producers also are responding to high hog prices and more favorable feeding margins, though it might be mid-1976 till we see much of a jump in production. Broiler output could run a tenth larger in first half 1976 vs. a year ago.

The good news for consumers is: slower advances in food prices next year, certainly less than the 9-percent leap charted in 1975.



Farmers always have lived on intimate terms with their surroundings. A deep respect for the land is a hallmark of rural people everywhere.

Early in the 19th century, rural concern for the environment found expression in the study of nature. Spurred by spontaneously organized local clubs, and curious individuals as well as by schools and universities, interest became intense in the days of Thoreau and Emerson.

After the fashion of the times, scientific interest in nature study was strongly mixed with romanticism and theology. Nature study was considered not only intellectually stimulating but spiritually uplifting as well. It inspired many a poem, painting, story, and sermon.

Farmers were urged to beautify their homes with flowers and trees. The *Cultivator* expressed a widely held view when it advised its readers in 1842 to "remember that every tree, shrub and flower he cultivates, constitutes a new link of attachment to bind him to his home, and render that home more delightful. They multiply our means of enjoyment, they make additions to our stock of knowledge, they invite us to a more intimate communion with nature, and they prevent the concentration of the mind on wealth, and the narrow selfishness that is too often its attendant."

More practical turn. By the end of the 1800's, interest in the environment began to take a more practical turn. A rapidly growing population and disappearance of the frontier brought home the fact that our agricultural resources were not infinite. The environmental abuses in the wake of rapid industrialization and the growing commercialization of agriculture provided disturbing indications of things to come.

Waste and exploitation of our natural resources were among the first targets of the environmentalists. They were mainly concerned with the fear of permanent damage resulting from drainage, cutting of forests, plowing of grasslands, and depletion of minerals and fuels.

One of the first accomplishments of the early environmentalists was the Forest Reserves Act of 1891 under which nearly all of our present national forests were created.

Birth of SCS. Though environmentalists had long been concerned about erosion, an effective soil conservation program was not undertaken until New Deal days with the passage of legislation establishing the Soil Conservation Service (SCS) in 1935. The idea of soil conservation received powerful support as a result of the dust storms during the droughts of 1933 through 1936. Huge clouds of dust rising thousands of feet into the air from plowed fields of the plains and drifting as far east as the Atlantic seaboard convinced millions of the need for action.

By the 1950's, environmentalists began to focus on pollution as well as resource conservation and productivity.

In agriculture, new pollution problems arose mainly from shifts to more intensive crop production systems and increased concentration of livestock operations. Agriculture's major pollutants include chemicals (pesticides, fertilizers, feed additives), animal wastes, crop residues, sediment, inorganic salts, and minerals and dust. Additional pollutants from agriculturally related activities such as the processing of food and fiber include organic waste or sewage, particularly discharges in air, and other discharges that can degrade the quality of the environment.

Concerning agriculture. Most environmental concerns, actions taken, and laws passed that affect agriculture most directly have dealt with water pollution and pesticides. Agriculture is not a significant contributor to air pollution, though the burning of crop residues and the emission

(Continued on page 6.)

An industrial plant dumps its waste in the Ohio River.

Strip mining for coal worries farmers and environmentalists.

Polluted water drains from a feedlot. Controlling such runoff could cost big beef operators as much as $133 million.

Defending The Land

When pioneers plunged into the American wilderness, they found vast expanses of land just waiting to be tamed by wooden plows.

An abundant future lay just over the next hill, if only the settler could survive Indian attacks.

Finding land wasn't so much of a problem, of course, as clearing it. A clearing carved out by a single farm family was the merest dot on the face of a continent. Eastern woodlands were so thick that travel was greatly impeded. Western plains were covered with shaggy seas of buffalo, and snow-capped mountains sent clear rivers roaring into the valleys and plains below.

Few early settlers could have imagined that much of this wilderness would vanish within two centuries.

But land was cleared and stripped; sewage and industrial wastes poured into the roaring rivers; and hunters turned the sea of bison into a waste of bleached bone.

At the turn of the 20th century, Americans awoke to behold great environmental losses. From that awakening grew the modern conservation movement.

Tipping his hat, Teddy Roosevelt touted conservationist's causes.

Smithsonian Institute Photo

President Theodore Roosevelt, a boisterous leader who ballyhooed his love for the outdoors, was among the early conservationists.

Although historians suspect underlying political motives for his conservationist utterings, Roosevelt nevertheless extolled the conservation viewpoint and stirred the Nation's conscience.

Influencing Roosevelt were W. J. McGee, Gifford Pinchot, and George H. Maxwell.

Pinchot, called the "spiritual leader" of early 20th century conservationists, was the first forester of the U.S. Forest Service. His interests also included soil and water conservation. After Government service, Pinchot headed the National Conservation Association.

W. J. McGee, a self-educated anthropologist, hydrologist, and geologist, championed irrigation and inland waterways. As the little-heralded scientific leader of Rooseveltian conservationists, McGee sought improvement and preservation of the Nation's waterways.

George H. Maxwell, another drumbeater for wise water use, started the National Irrigation Association and headed the drive for the Reclamation Act of 1902. He urged flood control and Federal regulation of inland waterways. Maxwell continued his fight until his death in 1946.

George P. Marsh trumpeted conservation long before Roosevelt. In *Man and Nature* in 1864, he blamed mankind for changing the physical condition of earth and urged proper land use to preserve natural resources. Called the father of modern conservation by some historians, March's work served as a valued reference for later conservationists.

Rachel Carson warned Americans of a catastrophic "Silent Spring."

Hugh H. Bennett, founder of the Soil Erosion Service (today's Soil Conservation Service), led the 20th century soil conservation movement. Under his guidance, his agency reclaimed land in the West and Midwest in the Depression era.

Mabel R. Edge, lover of birds and wildlife, formed the Emergency Conservation Committee in the 1920's to promote wildlife preservation. In her 30-year tenure as chairwoman, she campaigned for sanctuaries, published pamphlets on resource issues, and led conservation causes as a propagandist.

Rachel L. Carson's book *Silent Spring* warned Americans of dangers of chemicals to the ecosystem. Conservationists rallied behind her, to breathe new life into the languishing conservation movement.

While many others may boast equally impressive credentials, these men and women exemplify the Americans who stepped forward to defend the land.

[Based on special material by Gerald R. Ogden, National Economic Analysis Division.]

Airplane vs. the Bug

The insect has always been one of man's most persistent and potentially dangerous enemies. Around the turn of the century, farmers fought the bug with hand-held spray guns. Although generally effective, that was time consuming and tedious.

Toward the end of World War I, something better appeared on the horizon—the airplane. The original experiment on Aug. 3, 1921, involved a grove of catalpa trees in Troy, Ohio, which had been attacked by the sphinx caterpillar. The dusting experiment, conducted by the Ohio Agricultural Experiment Station and the Army Air Service, was a success. This led to experimentation on controlling the leaf worm and boll weevil in cotton fields.

The first commercial firm to take advantage of aerial dusting was Huff-Deland Dusters, headquartered in Macon, Ga., which opened for business in 1924 to treat cotton fields in the South.

By the end of 1925, Huff-Deland had dusted more than 60,000 acres of cotton. Realizing that the cotton problem was only seasonal, they began research on the treatment of Georgia peach orchards.

For almost the next 20 years, dusters experimented with various types of improved aircraft equipment and insecticides in different parts of the U.S. and Europe, but there were few real improvements until World War II.

During the war years the airplane became an invaluable pest-control vehicle. U.S. and Allied troops fighting in the Southwest Pacific, as well as other areas, were threatened by dangerous malaria-bearing mosquitoes. Aircraft were able to spray streams of DDT over many inaccessible breeding areas, to keep the insects in check.

After the war, the airplane became a more and more effective tool for controlling insects. In 1958, nearly 21 million acres of cropland were dusted or sprayed by aircraft.

Only in the last decade has there been any effort to protect the environment from widespread and indiscriminate application of insecticides. Publicity in the spring and summer of 1964 about the large numbers of fish killed in the Midwest by insecticides caused a loud public uproar. As a result, Congress appropriated $22.5 million that September for USDA to research the biological controls of insect pests and to develop chemicals that will control pests without harming other forms of life.

[Based on "Origins of Aerial Crop Dusting" in *Agricultural History* by Eldon W. Downs, Aerospace Studies Institute, Air University, and George F. Lemmer, U.S. Air Force.]

(Continued from page 4.)

of dust from grain elevators and cotton ginning operations sometimes cause problems. But farmers, especially those on the urban fringes, are sometimes victims of air pollution from nonagricultural sources.

Public concern about environmental abuse became intense after the publication of the book, *Silent Spring*, by Rachel Carson in 1962. It soon found expression in a series of Federal laws, including the Water Quality Act of 1965, the Clean Water Restoration Act of 1966, the Federal Air Quality Act of 1970, and the National Environmental Policy Act of 1970 which established the Environmental Protection Agency (EPA).

In 1972, two other environmental laws were passed that are extremely important to agriculture: The Federal Water Pollution Control Act and the Federal Environmental Pesticide Control Act.

The objective of the Water Pollution Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

Main impact. One of its main impacts on agriculture involves *point sources of pollution* such as feedlots and agricultural processing plants that may discharge wastes directly to receiving waters. It requires that operators apply the "best practical" effluent control technology by 1977 and use the "best available, economically achievable" technology by 1983.

The Act also calls on the States to identify and develop guidelines dealing with *nonpoint sources of pollution*, consulting Federal agencies.

The Pesticides Act provided important amendments to registration procedures and the mechanisms for administrative hearings on refusals to register, changes in classification, and suspension and cancellation of pesticides.

In addition, the Act authorized EPA to place pesticides in a "restricted use" category, thus subjecting them to controls in distribution and ultimately requiring their use only by trained applicators.

Currently, public attention is fo-

Pollution by other industries often hits agriculture. Here, bad air has killed good timber.

cused on the following environmental issues in agricultural and rural resource areas:

Pesticides. Most pesticides fall into three major categories: insecticides, herbicides, and fungicides. They are fundamental to the agricultural production system. Farmers rely on them to protect their plants and animals. They help insure efficient production of high quality food and fiber. Farmers spend about $5 billion a year for pest control, of which $3 billion is for pesticides and their application.

There are concerns about the effects of some pesticides on human health and on the environment. Some remain in soil and water for long periods of time. Their residues are hazardous to some fish and wildlife. They have a tendency to accumulate in the fatty tissue of warm-blooded animals, including man.

Cancelled products. Some pesticides have been banned. Following a public hearing, EPA cancelled interstate shipment of DDT for all uses except public health and a few minor agricultural uses effective December 31, 1972. Compound 1080, used for predator control, was banned by Executive Order in 1972. Uses of aldrin and dieldrin were suspended in 1974. Hearings on the suspension of chlordane and heptachlor are underway,

Typical scene of air pollution by industry, Wash. Co., Ohio.

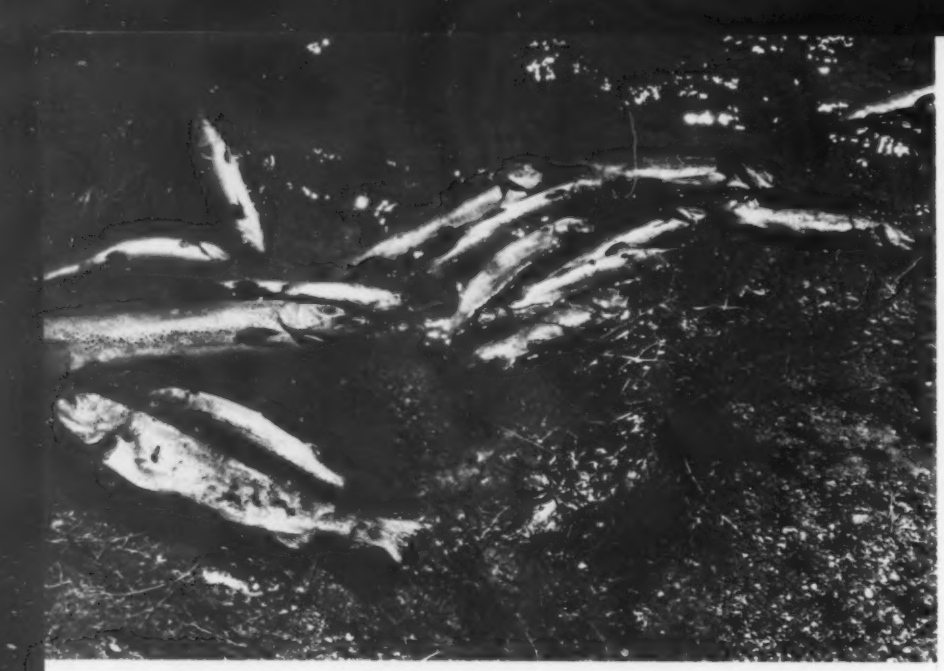
and other pesticides are under review by EPA.

The costs to farmers as well as the benefits to society of banning or restricting the use of pesticides, such as DDT, are difficult to assess. Farmers may change production practices with resulting changes in input costs. Production may be raised or lowered, affecting the farmer's earnings.

The adoption of substitute chemicals, or biological and cultural pest control practices, poses unknowns as to costs, effectiveness, and even possible hazards. The costs of such environmental actions must be weighed against the benefits to human health and the environment. Furthermore, as is often the case when new technology is adopted, unforeseen costs as well as benefits are liable to crop up.

Nonpoint pollution sources. Potential sources of surface and ground water pollution include sediment, farm chemicals, and plant and animal wastes and residue from cropland, grazing areas, and farm woodlots.

Currently, EPA has no authority to prescribe on-farm agricultural practices to reduce potential pollution from nonpoint sources. Sound man-



Cause unknown, but some 300 fish died in this accident.

agement practices geared to the needs of the individual farm or region are often the key to avoiding this kind of pollution.

As far as agricultural practices are concerned, the 1972 Water Act is limited to (1) research into methods to reduce pollution (primarily erosion) from agricultural practices, (2) identifying the nature and extent of agricultural pollution, and (3) requiring the States to report on how they intend to deal with the problem.

Animal wastes. Animal waste problems result not only from direct deposits by the livestock on pasture and rangeland. More important, they intensify in feedlots—both from accumulation and runoff. Proper spreading of animal wastes provides nutrients for crop production and also reduces pollution potential from surface runoff. Effective management practices include: (1) spreading manure more uniformly on land; (2) applying feedlot runoff effluent on land; (3) maintaining an adequate land-to-livestock ratio on pastures; and (4) locating feeders and waterers a reasonable distance from streams and water courses.

Point source pollution. EPA has established effluent guidelines for control of surface water pollution from point sources (defined as a single, identifiable source of pollution).

Nutrient losses from agricultural operations can be thwarted by: (1) applying nutrients in a way that insures efficient use by plants, (2) adopting cultural practices that minimize nutrient losses, and (3) reducing runoff by conservation measures.

Pesticides enter water by several means—including erosion, runoff water, and evaporation and redeposition—but the major method of conveyance is probably by erosion. Thus, good erosion control methods will reduce the delivery of pesticides to water. Minimizing wind drift, applying minimum amounts needed, substituting nonchemical methods of pest control and using biodegradable pesticides, are other alternatives to reduce quantity of pesticides entering surface and ground water.

Because of the diverse and widespread nature of farming, getting at pollution problems through regulations usually affects some farms or areas more than others. In fact, the incomes of farmers in areas not severely affected will even increase if overall production is reduced and farm prices go up.

For example, a restriction on the pesticide aldrin used by corn farmers may increase production costs for those growers with soil insect problems because alternative pest control practices are more costly or don't work as well. Farmers who have not needed aldrin for insect control may benefit from higher corn prices if total production of corn is reduced.

Consumers would suffer. Consumers, however, would have to pay higher prices for livestock and other products that depend on corn. The reduction in corn production could also affect our balance of payments because high prices may force foreign buyers to reduce their purchases.

Farmers can use improved tillage systems to adequately control water erosion on many soils. Also effective are crop rotations, minimum tillage systems, and conservation practices such as cover crops, contour farming, and strip-cropping.

Price and income relationships have limited the ability of farmers to invest in soil conserving measures. High production costs may encourage intensive land uses at the expense of soil conserving practices such as grassland and forage production.

Farm chemicals. Nutrients contained in commercial fertilizers may find their way into surface and ground water. This causes environmental concern because algae growth in surface waters will be stimulated and high concentrations of nitrates in ground waters may result. However, it is extremely difficult to identify the extent to which natural and applied plant nutrients may contribute to water pollution.

Feedlots. Effluent guidelines for large feedlots were announced in April 1974. They apply only to operations with 1,000 steers or heifers, 700 dairy cows, or 2,500 hogs. Since the EPA guidelines are performance rather than design standards, feedlot operators can select from several different types of runoff control systems.

If all feedlots, regardless of size, were required to meet existing EPA guidelines, ERS estimated that additional investments of about $800 million would be required: dairy, $312 million; beef, $133 million; hogs, $254 million; and other livestock, about $100 million.

Agricultural Processing. Agricultural processing firms are required to comply with Federal and State standards for pollution control. These firms handle products with a retail value of more than $100 billion.

Studies indicate that the impact of pollution abatement will vary greatly among industries. It will depend on their ability to minimize costs and adopt new technology, particularly for byproduct utilization of recovered wastes. If markets for such wastes can be developed, the net cost of waste treatment will decline.

Sludge and solid waste. As efforts to clean up our air and water are intensified, attention turns to land. As a repository for wastes, it is a formidable problem. Solid wastes in 1969—primarily sewage sludge, garbage and trash—amounted to 250 million tons. Management of this waste cost municipalities about $5 billion in 1973.

Farmers will, of course, be directly involved in land disposal of wastes, whether in dumps or modern systems to recycle effluents and sludges to land under controlled systems.

An example of the latter is the land treatment system being used in Muskegon, Mich. It combines wastewater renovation and crop production. It uses 10,000 acres, 6,000 of which are irrigated cropland. For smaller communities, only several hundred acres would be required; but for metropolitan areas, more than 100,000 acres would be needed.

Coal and oil shale development. The energy crisis is causing many problems for farmers, including the high cost of energy and impacts on their environment. Great pressure is building for rapid development of coal resources, especially through open pit or strip mining.

Questions are being raised as to how rapid and extensive such development can be without causing unacceptable consequences to farmers, ranchers, rural people, and the environment.

Sediment. The soil materials carried to streams by runoff affect the uses of streams as sources of water and recreation and the contribution of streams to the natural environment. In addition, the amount of other pollutants in streams—such as pesticides, salts, plant nutrients, animal waste, crop residues, and infectious organisms—is directly related to the amount of soil lost through runoff.

Environmental concern about sediment control emphasized the downstream effects on people and resources. In agriculture, however, the goal of soil conservation has been to hold soil loss to rates that are offset by the formation of new soil.

Questions of direct interest to farmers: How much land would be torn up and whose land? How much water is available and how would its use in mining or energy processing affect agriculture? Can strip-mined land be reclaimed and how should it be done? What is a reasonable cost for reclamation? When should reclamation occur—concurrently with mining or after the mine is exhausted? Answers to these and other questions are needed to evaluate the tradeoffs between benefits of coal and shale development and the environmental and social consequences.

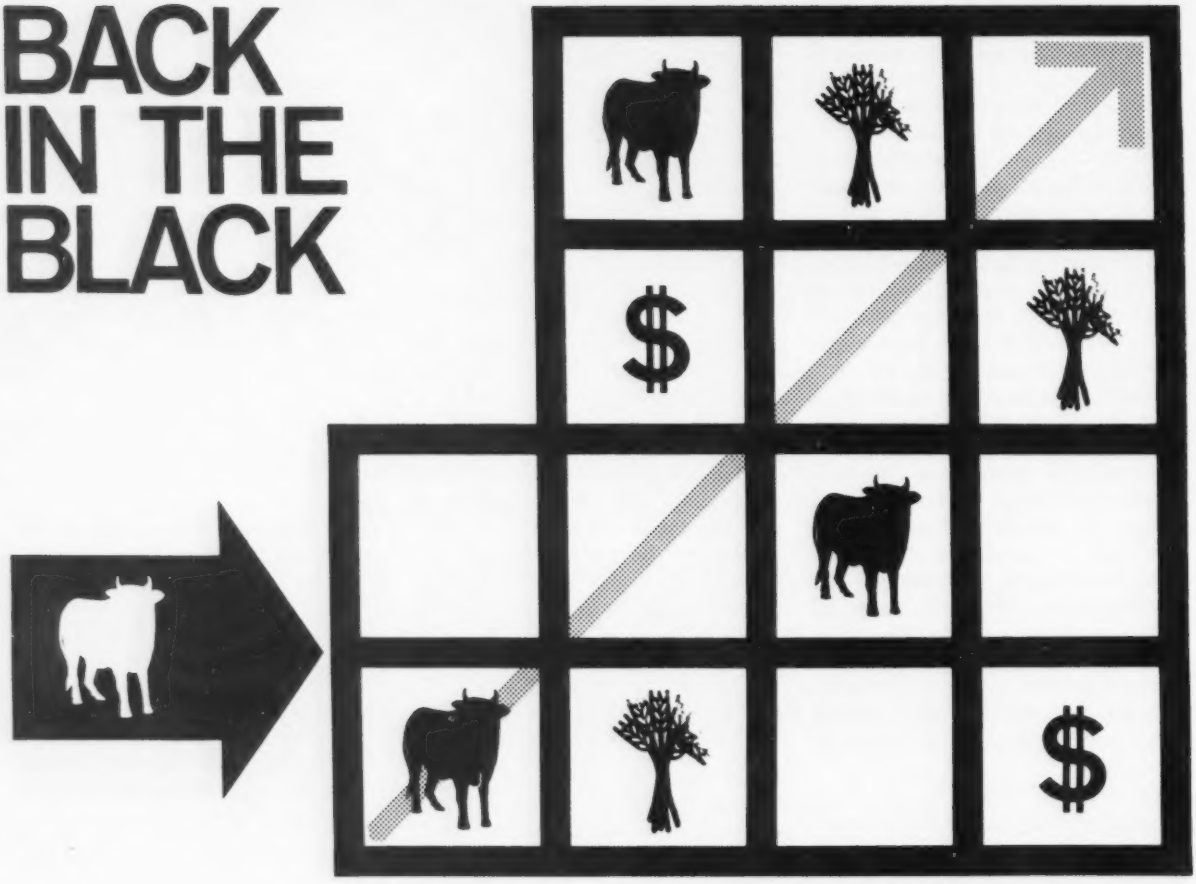
Who pays? When it comes to the question of who pays, the farmer having to adopt a pollution control practice may find that he is footing the bill. In this respect he generally is at a disadvantage compared with most industrial firms because of the large number of farmers and the competitive structure of agriculture. Individually, he has little or no ability to pass the increased cost on to consumers.

There are other ways of offsetting some of the farmers' costs in complying with environmental regulations. Various public programs could offer subsidies, technical assistance, sharing cost of pollution control facilities, and tax credits. The Soil Conservation Service assists in designing some animal waste control facilities and erosion control practices and structures. Currently, there are no other cost sharing programs.

[Based on special material by Environmental Studies staff, Natural Resource Economics Division.]

Severe gully erosion denudes vegetation in California.

BACK IN THE BLACK



Better times are back in the picture for long-suffering cattle feeders. After almost 2 years of depressed profits, feedlots are filling up, and feeders are once again making money.

That's not to say that everything's rosy in the cattle industry. The men who raise feeder calves are still reporting considerable losses. But for feedlot operators, at least, things look brighter.

To the consumer, the return of cattle to feedlots means there will be more fed beef at the supermarket in 1976. Retail beef prices might not retreat much—if at all—from 1975 levels in view of constant price inflation in the general economy. On the other hand, shoppers would be paying much more for beef in early 1976 had cattlemen not decided to restock their feedlots.

Hard times for feeders. From September 1973 to April 1975, cattle feeders were losing their shirts. Feedlots were operating at half capacity, or less. Fed beef, which makes up most of the Choice cuts of meat, all but disappeared from some supermarket counters. Consumers were offered large quantities of grass-fed beef for the first time in years. Many complained that it didn't taste as good as the richly marbled and tender grain-fed product, although it sold well enough at the store.

The cattle feeders' hard times started back in 1973 and the days of price controls. Many packing plants closed temporarily. Some feeders held their cattle off the market in anticipation of higher prices once controls were removed. Unfortunately for them, this didn't happen. When controls were lifted, the market was glutted with fed cattle, and prices fell.

The makings of a depression. Meantime, the cost of feeder cattle skyrocketed. Grain prices also forged ahead. High input costs, combined with a sinking market value for the finished product, ignited a depression in the cattle feeding industry that was to last 20 months.

Cattle feeders lost an average 2 to 13 cents a pound for every animal they sold. When you consider that fed cattle are marketed at about 1,000 pounds per head, and that over 35 million fed cattle were marketed during this period, that adds up to quite a loss.

In early 1975, though, cattle feeding was cut back enough to bring a strong upward price reaction. In mid-

1975 there were only 8½ million cattle on feed compared with almost 14 million in 1973. This spring, in fact, fewer fed cattle were marketed than any time in the last 10 years.

This obviously hit hard at prices of cattle that were candidates for feedlot fattening, souring herd owners' prospects.

Feed costs. One of the cattle feeder's problems during the 20-month depression was the price of feed grains—something he has very little control over. Grain costs were high throughout this period. A bumper crop this fall softened prices somewhat. Corn prices, for example, are well below what they were this time last year.

Conditions affecting grain costs were unique this year. First of all, carryover stocks from the 1974 crop were unusually low. In addition, short grain crops in other countries caused a heavy demand for U.S. exports. Production shortfalls in the Soviet Union, in particular, prompted substantial purchases of U.S. feed grains, keeping domestic feed costs strong.

Cattle feeders began moving cattle back into feedlots this fall, following a period of hesitation in the summer. After 20 months of financial losses, they had been understandably cautious about placing cattle on feed, especially while grain markets were unsettled. However, placements have started to pick up again. Third quarter placements of cattle on feed were up 22 percent from a year ago, marking the second consecutive quarter of increase after 2 years of decline.

Favorable conditions. Feeder cattle prices are still low—partly due to the cyclical bulge in the supply of beef cattle for the past year or so—while fed cattle prices keep much of their strength. Fourth quarter Choice steer prices may average around $45 per hundred pounds, down from this fall's $48 and the year's peak of $53. Even so, cattle feeding was relatively profitable, considering that prices in early 1975 were down around $35.

[Based on special material from George Hoffman, Commodity Economics Division.]

The Feedlot or the Farm?

Back when grain supplies and our natural resources seemed limitless, a pound of beef could be produced cheaper in the feedlot than on pasture. With the rise in the prices of feed and fertilizer, these relationships may have changed.

Higher feed prices raise the cost of growing beef in the feedlot. But higher fertilizer and fuel prices also raise the cost of growing beef on grass.

Higher production costs both in the feedlot and on pasture reflect increased export demand for U.S. food and feed grains . . . short grain crops at home in 1974 . . . and the sharp jump in prices of petroleum and related products following the 1973/74 Arab oil embargo.

The embargo revealed our heavy dependence on energy. The United States is the highest per capita user of energy in the world, and U.S. agriculture is among the most energy dependent.

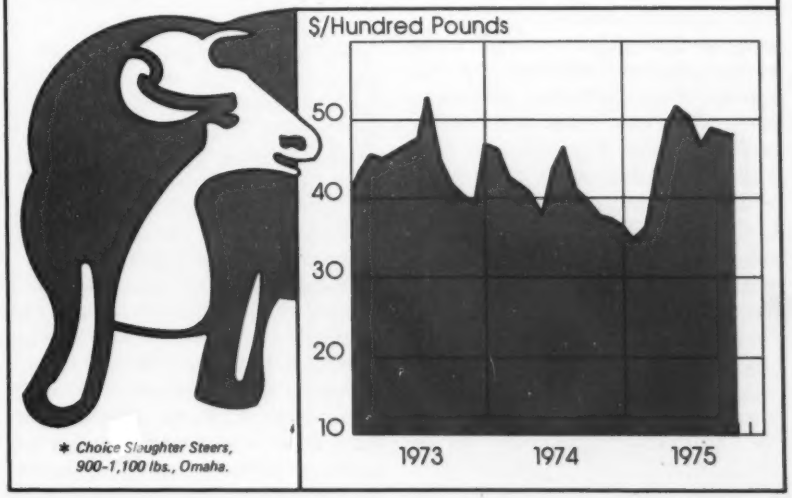
As a result of the increased fuel and grain prices, the cattle industry has been making some feeding adjustments. With the rise in the price of fertilizer, beef production on unfertilized pastures may have become relatively more profitable than growing beef on the more productive, fertilized pastures. Thus, the drier western ranges may have gained the edge over the rest of the country in the production of grass-fed beef.

The advantages of producing beef on forage or grain depends in part on the amount of feed harvested per acre and the alternative markets for that feed. Experiments have shown that in many areas feed produced per acre of forage is as high or higher than per acre of grain.

The disadvantages of feed production from forage are that large quantities of forage can only be used by ruminant animals, whereas grain can be fed to hogs or poultry. Also, forage is more bulky.

[Based on the paper "Energy, Fertilizer, and Feed Grain Requirements and Prospects and Their Effect on the Beef Cattle Industry," presented at the Southern Regional Forage-Fed Beef Research Workshop, New Orleans, La., October 1975, by James Vermeer, Commodity Economics Division.]

Cattle Prices*... Looking up



* Choice Slaughter Steers, 900-1,100 lbs., Omaha.

When the clock strikes 12 on New Year's Eve, many Americans will toast the start of America's Bicentennial Year.

American wine producers may well follow with a toast to U.S. consumers who are buying more wines than ever before.

The new year promises to be a vintage year for the U.S. wine industry. There are these encouraging trends:

- The demand for U.S. wines has boomed since 1969, as consumption rose 60 percent by 1974 to 1.65 gallons for each American.
- The 1975 grape crop should reach 4.3 million tons. In California, which dominates U.S. grape production, the crop may be almost 2 percent larger than the 1974 crop. More than half will be used in wine-making.
- The grape industry grossed $609 million in 1974, exceeding the worth of the apple crop and nearly matching the value of oranges.
- Commercially produced wine entering distribution channels in the U.S. jumped from 163 million gallons in 1960 to 350 million gallons last year.
- As demand increased, an additional 26,000 acres of wine grapes were planted last year.

To a wine industry that has long suffered from a national disinclination for its product, these new trends are welcome news.

Americans shunned wine. Until recent years, Americans shunned wines in general, and, if they did buy wines, they preferred European labels. American wines were considered inferior.

While the reasons behind America's low wine consumption are open to speculation, the fact remains that U.S. per capita consumption is still only a small fraction of that in most European countries.

Perhaps one factor in the rising popularity of American wines is that more U.S. consumers are discovering the quality of the home-grown product. ERS authorities suggest that the climate of California's grape-producing areas is ideal for producing the grapes needed for consistently good-quality wines.

Imported wines drop. As a result, imported wines entering U.S. distribution channels dropped from 55 million gallons in 1973 to 51 million gallons in 1974, while U.S. wines increased from 292 million gallons to 298 million gallons.

The grape industry, keenly aware of Americans' growing affinity for wines, has shifted production accordingly, and in fact too much so, according to producers worried about the profit outlook. More and more acreage is being put to wine grapes, even though other grape forms, such as table grapes, raisins, and juice, have stabilized in demand in recent years after steady declines.

Grapes are major cash crops in a dozen States. California produced 90 percent of the total crop in 1974, with New York finishing a distant second, followed by Washington, Pennsylvania, and Michigan. States other than California emphasize Concord grape production. Concords are generally most suited for juice and jelly.

Concords diverted. However, when the wine boom came, the industry had to divert significant tonnages of Concords to wine uses. Even in 1974, after wine grape production had greatly increased, 46 percent of the New York Concord crop went into wine.

Producers had little choice but to resort to diverting Concords because the initial surge in wine demand was coupled with a poor wine grape crop in 1970. Unfavorable weather conditions reduced that crop by 800,000 tons from 1969. Even with the use of Concords, grape prices soared so fast that growers were provided with ample incentive to expand production.

As a result, California grape plantings increased tenfold from 1968 to 1973. Last year, California growers planted an additional 30,000 acres, and 9,000 more acres are expected in 1975.

An over abundance. Now producers are confronted with a major problem that resulted from too much of a good thing.

RUNNETH OVER

The wine supply is expected to swell so much in the next few years when these additional plantings bear fruit that it could outstrip not only domestic demand, but also the industry's capacity to store the product.

Under average growing conditions, California alone should produce 4.2 million tons of grapes by 1978, with a 50-percent increase in wine grapes, according to ERS projections.

Storage problem. The industry's present capacity to store wines falls far short of requirements. While cooperage—construction of bulk storage containers—may expand enough to accommodate an additional 20 million gallons of wine, the total storage capacity may be 30 million gallons short in 1975, if production is not curtailed or if demand doesn't increase at a greater rate.

Wine producers are tackling the problem by trying to stimulate sales. A major tactic is to use larger, more economical containers at the retail level. Gallon and half-gallon bottles, which were once used primarily for low-quality wines, are now being used more and more for quality wines.

The larger containers allow for a reduction in bottling costs, and this savings is passed on to the consumer.

Sales pick up. Initial reaction from consumers has been encouraging for wine producers. The volume of wine entering distribution channels in the U.S. in June 1975 was 15 percent greater than that in June 1974. Sales in the 6-month period from January to June 1975 were 10 percent greater than in the 1974 period.

While such marketing techniques may obviously boost sales, the ultimate fate of the wine industry still lies in the hands of consumers.

The reasons behind the rising affinity for wines have not been fully investigated, but the best guesses are: increasing numbers of college educated people, rising affluence, availability of new types of wines, and increased travel in wine-consuming European countries and in wine-producing States.

Household survey. ERS is now studying American wine consumption tendencies through a survey of 7,000 U.S. households that represent a cross section of the Nation. Each household has been asked to keep a monthly diary of wine purchases. The study will shed light on reasons behind the wine consumption surge.

Thus far the findings indicate that most American households do not buy or consume wine. Significant variations have been found among groups by age, location, education, and type of employment.

In urban areas, almost 60 percent of the households surveyed made wine purchases in a 6-month period, while less than 30 percent of those in areas with less than 50,000 people bought wine.

Coastal consumers. Consumers in Pacific Coast States purchased wine at the greatest rate, with 63 percent reporting at least one wine purchase. New England and Mid-Atlantic States households followed with a 57-percent incidence of purchase.

In general, members of the typical wine-buying household were better educated and had higher incomes than the abstainers. Husbands in wine-buying families usually hold white-collar jobs, while husbands in non-wine-buying households tend to be blue-collar workers, according to the survey.

The traditional use of wine as a means of celebrating special occasions was evident in the survey, as more than 35 percent of the purchases were intended for special occasions. This was especially true for households that purchased only small quantities of wine.

Holiday sales. The "special occasion" aspect is also mirrored in the seasonality of purchases. In December, the height of the holiday season, a third of all households surveyed reported wine purchases. In January, only 17 percent of them did.

Overall, the results of the survey should be encouraging to wine producers, as they indicate a vast potential. First, there is the large percentage of households not buying wine. Secondly, there is the small amount being bought in most wine-buying households.

Also, there are characteristics of wine-buying households that offer encouragement. Findings indicate that wine consumption will increase as income and educational levels rise in the U.S.

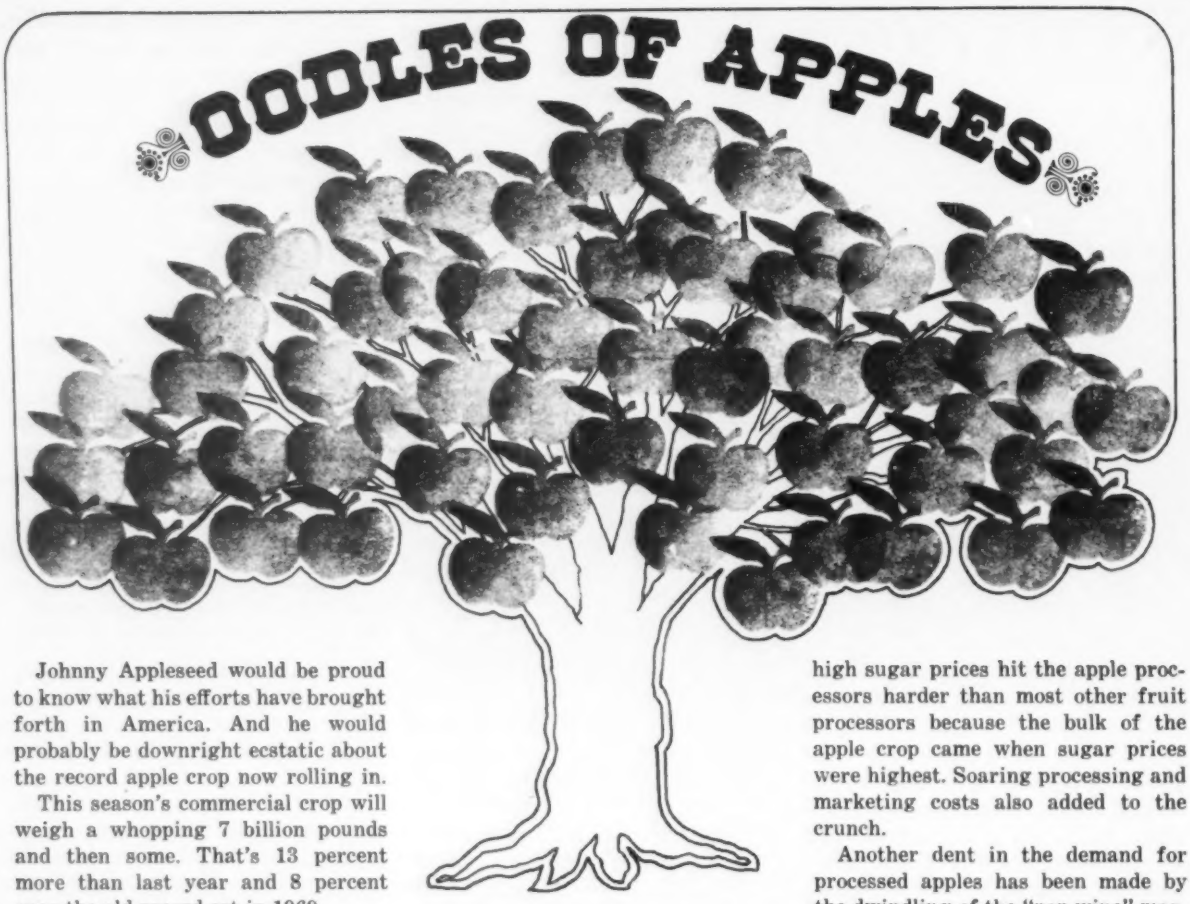
Other influences. ERS researchers do not imply, however, that additional consumption will match the surge experienced in the wine boom years. Other factors, such as wine prices, new products, and product promotion, will also sway consumption trends.

At any rate, U.S. wine producers will eagerly await the reaction of the American consumer as vast new supplies reach the market.

And the consumer will soon determine the fate of the great production boom: will it result in a tidy producer profit, or a costly oversupply?

[Based on the report, "A Brief Overview of the United States' Grape Industry," by John L. Baritelle, Commodity Economics Division, and Raymond Folwell, Washington State University, published in *Fruit Situation*, (TRS-196), September 1975.]

OODLES OF APPLES



Johnny Appleseed would be proud to know what his efforts have brought forth in America. And he would probably be downright ecstatic about the record apple crop now rolling in.

This season's commercial crop will weigh a whopping 7 billion pounds and then some. That's 13 percent more than last year and 8 percent over the old record set in 1969.

Almost three-tenths of our apple production comes from Washington State, where the 1975 harvest will also bump previous records. In fact, production this year is up in every major apple State except for New Jersey, Minnesota, and Oregon.

Dwarfs blossom. The main reason for this outburst is the use of dwarf and semidwarf apple trees rather than the traditional full-size variety. Mighty for their size, the smaller trees actually bear more per acre. Moreover, they don't take as long to start producing after they've been planted.

The dwarf-type trees have been gaining on the standard types since the early 1960's. Production increases were held back at first as the bigger trees were removed to make way for the mightier midgets.

Now that the impact of the dwarfs is being felt, production should continue to climb for the next 5 years or so, barring unfavorable weather.

With more apples around, the question becomes what to do with them. Will the processors take more? Will the consumers munch more fresh ones? Will we export more? Or will the growers be stuck with them?

Processing slack. First of all, the processors aren't likely to take any more apples than usual this season. If anything, they'll probably cut down on purchases. Many of them are already faced with large stocks —particularly of canned apples and applesauce.

What's more, these are high-priced stocks, a fact that consumers have been balking at. Processors paid growers record prices for their apples last year, about two to three times what they're paying this year. And high sugar prices hit the apple processors harder than most other fruit processors because the bulk of the apple crop came when sugar prices were highest. Soaring processing and marketing costs also added to the crunch.

Another dent in the demand for processed apples has been made by the dwindling of the "pop wine" market. Riding the tide of increased wine consumption in the late sixties, these wines—made from a mixture of grape and other juices—became quite popular. However, the fad seems to have run its course, as sales have been dropping in the past year or two, even though wine demand in general has remained strong.

Fresh market boom. With the lackluster demand for processed apples, more will be moving into the fresh market. And consumers will indeed be munching more if estimates hold true. Consumption in 1975 should be up by 2 pounds a person, meaning that each of us will have eaten just under 18 pounds of fresh apples by the end of the year, not counting the 11 pounds we'll eat in the form of processed items.

Prices will, of course, be the key to the quantity consumers purchase. As

long as retail prices remain well below the high levels of last season, consumers will probably buy more apples.

A popular snack and salad food, apples often compete with citrus fruits and bananas, and even other snack foods for the consumer's dollar. With a slightly smaller orange crop expected this season, competition would lessen somewhat from this front. However, bananas could become a stronger lure if their prices continue to decline. Other snack foods—particularly the sugary or sweetened, starchy kind—will likely remain weaker competitors, as consumers turn to less expensive, natural foods.

Exports dim. Export prospects for our fresh apples look dim, for the apple boom is not confined to the U.S.

An importer of nearly 30 million pounds of U.S. apples last season, Europe will probably take less in the face of an expected production leap of nearly 11 percent. Canada, the No. 1 customer for U.S. apples, might also be importing less than last year, as the country anticipates the largest apple crop in several seasons. Last season, over half of our exports of fresh apples, or 125 million pounds, went to Canada.

On the bright side, as the world economy continues to recover, the demand for canned fruit items in general is likely to strengthen. Also, the surging economies of the oil-exporting countries are creating new markets for processed fruit. U.S. apple products could get an increasing share of this business.

Grower crunch. Ultimately, the supply problem comes to rest on the grower. Large growers who have access to cold storage warehouses with controlled atmosphere can store fresh apples for up to 1 year without noticeable loss of quality. Growers without storage, on the other hand, must sell their apples as they ripen.

Grower prices for apples are substantially below the highs of last year. For example, many processors in the East are paying growers $1.50-$3 per hundredweight, compared with $6.25-$7 a year ago.

But prices are not the only problem. Growers may not be able to sell some of their apples to processors or wholesalers. Even growers who have regularly sold to these outlets in the past may have some difficulty since medium- or long-term contracts are foreign to the apple industry.

Marketing step-ups. Faced with watching their apples rot and their income deteriorate, some growers are trying to build new markets. As a result, more roadside stands—from apple vendors to "country stores" selling fresh apples, cider, apple pie, and other country goodies—have been popping up.

Also, some growers have opened up their orchards to the pick-your-own enthusiasts. Attracted by the opportunity of a country outing and the novelty of harvesting their own apples, the customers can buy at prices below those in the supermarket.

The apple industry is also beefing up its promotional campaign to tempt consumers to eat more apples. Much of the advertising stresses the nutritional angle, with a special appeal to "natural food" searchers. And, not to be left out of the Bicentennial spirit, the industry is pointing to the apple's American heritage.

[Based on special material from Andrew A. Duymovic and Ben Huang, Commodity Economics Division.]

The Evolving Apple

The fresh apple is still very much with us, but consumer preferences have changed since Adam bit out that first chunk. At least in the U.S., the fresh apple has lost some ground to the processed version.

In 1950 we ate 70 percent of our apples the way they came off the tree; by 1974, only 56 percent.

The biggest gains in processed apple products have come from canned items—mainly applesauce and juice. Since 1960, the applesauce pack has increased at a rate of 160,000 cases a year on the average. Canned apple output has remained fairly stable, however, because of competition from alternative products.

Output of canned apple juice has increased dramatically since 1960, going from a little over 6 million cases to almost 15 million in 1974.

Production of frozen apple slices has also been on the rise. Since 1960, the pack has grown at an average annual rate of 4.6 million pounds. This spurt in frozen apples has resulted from the greater use of the slices in pies and other bakery items. Prospects for this market look good through 1980.

The only processing market which has not shown an uphill trend is that for dried apples. Since 1965, this market has taken the smallest piece of the apple crop. Before then, dried apples had a slight edge over canned juice.

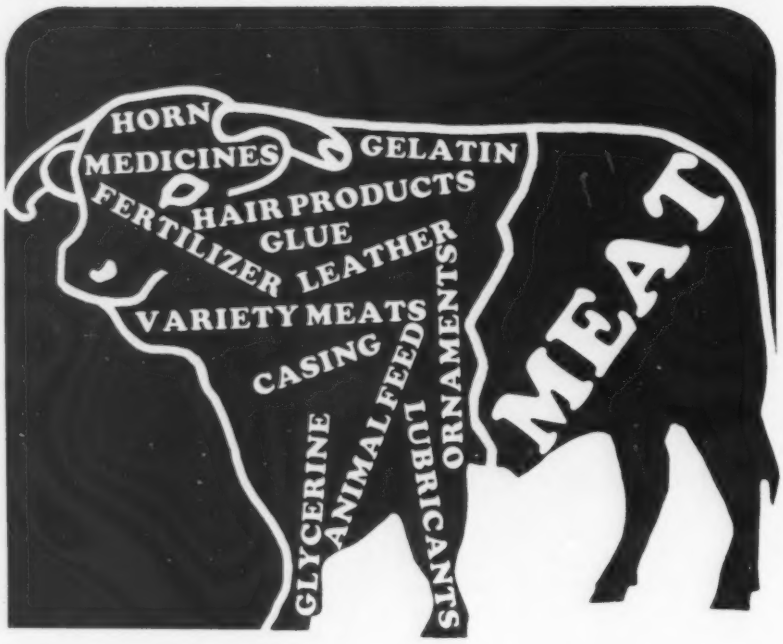
How did that munchable favorite —the fresh apple—lose ground in the first place?

The answer is our changing lifestyle. With the trend toward convenience and time-saving foods, such traditions as making an apple pie from scratch have given way to purchasing a frozen, ready-to-bake pie, or even an already baked one from the bakery or supermarket. Also, the trend toward eating away from home has stimulated the market for processed fruit. One example is the apple turnover, offered at many fast-food places.

As well as consumer tastes and preferences, technology has had a hand in boosting apple processing. Quality of processed products has improved, and new and modified forms have hit the market, such as frozen apple slices and mixed fruit juices.

[Based on speech, "Processed Apple Utilization Trends—Outlook and Competition on the Domestic Markets," by Andrew A. Duymovic, Commodity Economics Division, at the Third National Processed Apple Conference, Rochester, N.Y., April 8-9.]

More Than Meat



You may not be able to make a silk purse out of a sow's ear, but you sure can make a lot of things out of livestock besides meat. As one livestock specialist said, "They've found a use for everything except the eyeball."

Actually, less than half of a live steer or hog reaches the dinner table as meat cuts. A 1,000-pound steer, for example, yields only an average of 440 pounds of meat, and a 220-pound hog gives only 118 pounds of table cuts.

What happens to the rest of the animal? A small portion is sold for direct consumption as variety meats, such as hearts, stomachs, tripe, spleens, livers, kidneys, brains, tongues, and sweetbreads.

Variety meats. Very high in nutritional content, variety meats have traditionally had low appeal for many American consumers, but higher red meat prices and acceptable recipes have prompted some to overcome the aesthetic barrier. Also, some variety meats go into sausages.

Although organ meats make up the great majority of variety meats, some other parts of the animal are also included, such as snouts, cheeks, pigs feet, and chitterlings, or hog intestines. Some of these have less nutritional content than the organ meats and have a more limited market.

One of the more obvious and well-known byproducts of the livestock industry is leather. All of the hides that are basically unmarred go to this profitable market. In fact, hides take a big share of all byproduct sales, which account for 6-8 percent of the wholesale value of the dressed-out animal.

Life-saving drugs. A very important but little-publicized byproduct market is in medicine. Several major drugs depend on livestock organs as their only or most effective ingredient.

Heparin, a powerful anticoagulant used in dissolving blood clots, is derived from the mucous lining of hog intestines. ACTH, a drug for treating arthritis and in minimizing aftereffects of surgery, depends solely upon livestock adrenal glands as a source. Although now available synthetically, cortisone also can be obtained from adrenals.

Insulin, the life-line of the diabetic, comes from the pancreas of animals. Although a synthetic insulin has been developed, it is not as effective as the real thing. Pancreatin, an enzyme used in biological research, also comes from the pancreas.

Hormones—testosterone, estrogen, and androgen—are extracted from the sex organs of livestock. These natural hormones are still in demand despite the advent of synthetics and those derived from sweetpotatoes.

Lard, grease, and glycerine. Tallow is a major byproduct of the livestock industry. Edible tallow, or lard, has a long market history, even though the average American consumer no longer buys it outright. Pure lard's supplanters—shortening and margarine—often contain some lard. Also, bakeries and fast-food chains use a lot of lard.

Inedible tallow is still used industrially, although one of its historically bigger markets—soap—has virtually dried up, with the introduction of synthetics. Today, a major portion of the inedible tallow goes into lubricants for gears and other machinery. Neatsfoot oil—a very high-grade oil used as a dressing for fine leather, a cutting oil, and a lubricating oil for watches and other delicate mechanisms—is obtained from select inedible tallow. Some inedible tallow also goes into the manufacture of glycerine—a liquid used in hand lotion, food preservatives, and explosives.

Protein shampoos and sprays. An up-and-coming customer for byproducts is the cosmetic industry. The boom in protein hair care products has been responsible for this relatively new outlet. Although vegetable proteins have been tried, they have been found wanting, for the human hair shaft is still most responsive to animal protein.

The cosmetic industry has been so anxious to get this animal protein that some companies have invested in

their own facilities to process the protein out of the animal bones. After processing, the substance is filtered, colored, and perfumed before it reaches the cosmetic counter.

Another buyer of livestock bones is the gelatin industry. So far, no substitute source has been developed, because gelatin's complex combination of amino acids has defied duplication. Gelatin itself has no actual food value; its protein can't be readily used by the human body. However, it is very much in demand because of its physical properties.

Horns from cattle are sold separately from the other bones, as they are often used in making ornamental items. However, since dehorning at the ranch has become so widespread, fewer horns are reaching the market these days.

Sausage stuffers. As in all industries, some markets come and go, and such is the casing market. Prior to the fifties, almost all sausage was stuffed in animal intestines, stomachs, or bladders. Some cellulose casings made from cotton had come into limited use, but their spread was checked by the fact they are inedible.

With the development of an edible synthetic casing in the fifties, some packers began to turn away from the more labor-demanding natural casings. Not only do the synthetic casings come ready for use, they are not perishable and so can be conveniently stored until needed.

The high-speed sausage stuffer has all but sounded the death knell for natural casings. Variations in length of casings and their inability to withstand the rigors of the mechanical process have relegated them to only specialty markets.

The hair problem. Animal hair per se is one of the more difficult items to move. Cattle hides are sold complete with hair to leather manufacturers who generally remove the hair before making a finished product. The pelt of lambs, of course, is shorn for the wool. Hog hair, or bristles, become another matter.

At one time, hair from hogs and other animals was used in stuffing upholstery and in insulating material. Synthetics have practically wiped out this market, although the heavier hog bristles are still used in some paint brushes, natural-bristle hair brushes, and toothbrushes.

Recognizing the protein content of hair, researchers have been trying for years to make it into edible protein for humans, but so far all attempts have rendered a substance with little food value.

The final repository for a lot of the remaining hair is animal feed. The hair is partially digested chemically before being mixed in the feed.

Blood reclaimed. Blood is another substance which once had few takers, and usually ended up in the garbage. The narrow market consisted of specialty ethnic foods such as blood pudding, blood sausage, and blood soup. (Incidentally, the word 'blood' must appear in the labeling of any food product containing blood.)

Tighter environmental controls and increased demand for high-protein livestock feeds have pushed blood into a new market. Even so, only a limited amount may be used in feeds, and it must be dried first—an expensive process. Some dried blood also goes for fertilizer.

After all the other more profitable byproducts have been bought by industry, the remaining parts of the animal go into pet foods, livestock feed, fertilizer, or glue. Pet foods and livestock feed get first pick, and take the biggest share. Generally, hides that have been rejected for leather use go into glue.

The final tank. Byproducts going into livestock feed (with the exception of blood) are ground up, cooked, defatted, and dryed. Since the material is derived from a mixture of items "thrown in the tank," it is called tankage.

The profitability of tankage depends not only on the processing costs involved, but also on the cost and availability of competing high-protein feeds and the demand for livestock feed in general. Stiff competitors are soybeans, cottonseed, linseed, sunflowerseed, alfalfa, brewer's and distiller's grains, and canning plant residues (pea pods, citrus pulp and peel, sugarbeet pulp, etc.).

More meat. Wider use of the mechanical deboner has cut down on the amount of meat tissue consigned to the tank. When meat is not mechanically deboned, every 100 pounds of bone has an average of 30 pounds of tissue clinging to it. This tissue—most of which can be recovered mechanically—can be added to ground meat or sausages or pet food, depending upon the quality of protein and amount of fat.

[Based on special material from Albert E. Cunningham, Animal and Plant Health Inspection Service, and Donald B. Agnew, Commodity Economics Division.]

Farm Ledger Looked Up in '74 Despite Livestock Woes

The American farmer's 1974 economic ledger on January 1, 1975 looked good on paper, on average. Total farm assets and equity climbed to record levels during 1974. But those gains concealed a sizable drop in net worth for livestock operators.

On the plus side of the balance sheet, total farm assets rose to $520 billion at the beginning of 1974, according to a recent ERS report. After an $82 billion debt is subtracted, farmers equity still reached a record $438 billion.

The minus side of the sheet was dominated by the battered livestock industry, and by the pale comparison of 1974 gains with 1973.

Although assets and equity set new highs last year, the rate of increase was less than half the 1973 rate of 24 percent. In 1973, farm assets soared by $88 billion, compared with $44 billion last year. The 1974 rate of gain was the smallest since 1971.

In assessing the overall health of the farm economy, ERS researchers examined several factors. Here is a brief summary of their findings:

The total value of farm real estate advanced 14 percent last year, considerably less than the 25 percent of 1973. Average value of an acre of farmland rose from $310 to $354 in 1974.

Livestock and poultry values on farms were hard hit by sharply lower value per head at the beginning of 1975. Overall, the value dropped from $42 billion to $24 billion, led by a $16 billion decline in the value of cattle and calves.

Unlike the worth of the livestock inventory, the value of farm machinery and motor vehicles jumped $11.5 billion to $56 billion, as prices and purchases of larger units rose. Economists say that high 1973 and 1974 incomes and larger acreage planted in 1974 sparked this increase.

On the home front, the worth of household equipment and furnishings on farms hit a record $15.5 billion due to a combination of inflation and purchases of more modern equipment.

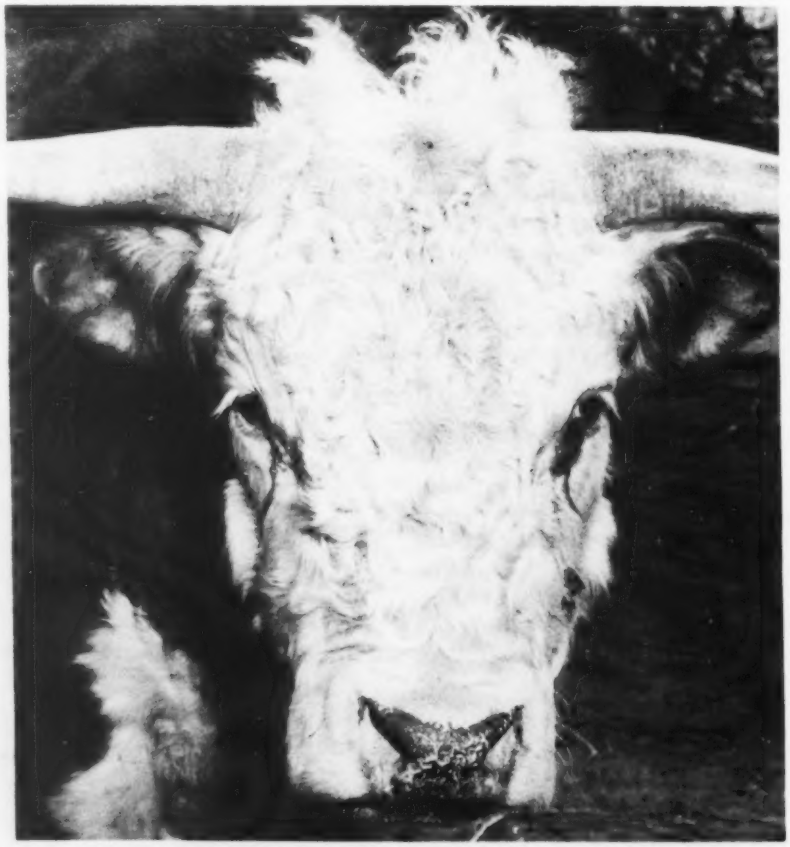
Farmers' financial assets rose $1 billion to almost $30 billion, mostly owing to increased net worth of farmer cooperatives. Of ready cash sources, only time deposits and U.S. Savings Bonds showed gains, and they were small.

Farm real estate debt rose by $5 billion. Again, the rate of increase was less than in 1973. Farmers may have been discouraged from expanding operations as land prices and interest rates rose. Preliminary indications are that the 1975 debt level will increase at about the same rate as in 1974.

The nonreal estate farm debt climbed to $35.5 billion on January 1, 1975. The 8 percent rise in 1974 compared with an increase of 15 percent in 1973 and reflected declining cattle markets and rising caution among farmers in borrowing for operating expenses.

Equity owned by farm proprietors gained at about the same rate as total assets and debts. The debt-to-asset ratio—an indicator of the farmers' well-being—remained about the same as at the end of 1973, which was the lowest since 1970.

[Based on the report, *Balance Sheet of the Farming Sector, 1975*, AIB-389, by Carson D. Evans, Richard W. Simunek, and Philip T. Allen, of National Economic Analysis Division.]



It was a bad year for this Hereford's owner in 1974.

Large Farm Operators Assume Lion's Share of Total Farm Debt

Large farm operators are assuming a disproportionately large share of the total farm debt, according to a recent ERS study.

About nine-tenths of that debt is held by farm operators who own less than two-thirds of total property assets.

Almost 80 percent of operators of farms with sales of $40,000 or more in 1970 had outstanding debts.

Smaller operators were less likely to assume debts. Only 47 percent of farmers in the $2,500 to $4,999 sales range owed money.

The ability of operators to repay debts also closely paralleled the indebtedness trends. Operators of the largest farms who had incurred debt received income that equalled 31 percent of their indebtedness in 1970. That percentage decreased with the size of operation in lesser farm size categories.

Farm operations were grouped into these categories:

Class I—$40,000 or more in net sales.
Class II—$20,000—$39,999
Class III—$10,000—$19,999
Class IV—$5,000—$9,999
Class V—$2,500—$4,999
Class VI—$50—$2,499

With 53 percent of all farm operators reporting outstanding debts at the end of 1970, the total farm debt was $35 billion, compared with $13.6 billion in net farm income.

Indebtedness may be considered an essential component in farm growth, according to the researchers, so the large farm debt isn't necessarily a negative factor.

Since 1970, the farm indebtedness more than doubled from the $19.9 billion of that year. With most of this owed by operators who have the highest ratio of income to debt, they are in the best position to repay.

The ratio of debt to equity was also higher on larger units, and rented land was a greater part of the operation.

Also, economic efficiency seemed greater on larger units. There is incentive to increase the size of the farm operation and, in turn, indebtedness.

Nonfarm income was an important factor in the study.

While farm income jumped 56 percent from 1960 to 1970, total net income, of both farm and nonfarm income, rose 76 percent to $26.2 billion. For all operators, 48 percent of the total income was from off-farm sources. Nonfarm income comprised only 15 percent of Class I income, and increased steadily to 96 percent for the smallest units.

Another factor in the study was the rising value of farmland and buildings, which rose 69 percent from $79.2 billion in 1960 to $133.5 billion in 1970.

However, even with the value increase, indebtedness grew disproportionately. Class I operator indebtedness comprised only 18 percent of the land value in 1960, compared to 28 percent in 1970.

Despite rising debts, the overall ability of farmers to repay the debts has improved or remained stable in most categories.

Net farm income of Class I farmers represented 36 percent of their debt in 1970, up from 33 percent in 1960. The ratio increased as the size of the farm decreased.

However, Class II and Class III farmers who owed money tended to lose ground in their ability to repay. Each lost 3 percentage points in the income-debt ratio since 1960.

[Based on the manuscript, "Debt Status of U.S. Farm Operators and Landlords by Economic Class, 1960, 1966, 1970," by J. Bruce Hottel, Robert D. Reinsel and William D. Crowley, National Economic Analysis Division.]

Packaging Adds More Than a Cover

It's not just the frozen vegetables, the corn chips, and the milk you pay for at the store. It's also what they come in. And that packaging adds up to 12 cents of your food dollar on the average.

Although packaging material costs have claimed about the same share of the marketing bill for a number of years, they have been steadily going up in actual dollar figures. In 1974, an estimated $11 billion was spent on packaging, almost 11 percent more than in 1973.

This increase in expenditures was due largely to higher wholesale prices for packaging materials, rather than an increase in the total quantity used. However, there were changes in the amounts used of some packaging materials.

Manufacturers took more glass bottles for food, but significantly fewer nonreturnable glass bottles for beverages—partly because of reduced demand for soft drinks, due to high sugar prices.

Demand rose for metal cans for vegetables and vegetable juices but dropped for soft drinks. The most important paper item—special food board—gained slightly.

Wholesale prices for packaging materials jumped a little over a fourth, with practically all of the increase hitting just after price controls were lifted in the spring of 1974.

The items showing the biggest increases were plastic film (46 percent) and paper milk cartons (43 percent). The increase in both cases can be largely blamed on sharply higher petroleum prices, since plastic film and the coating on milk cartons are petroleum derivatives.

Prices of metal containers were up over a third, and paper and paper board up a fourth. Glass containers advanced 15 percent, and corrugated shippers, 12 percent.

[Based on "The Bill or Marketing Farm-Food Products," by Terry L. Crawford, in *Marketing and Transportation Situation*, MTS-198, August.]

Recent Publications

Agricultural Economics, 1950-2000. Lyle P. Shertz, Office of the Administrator. ERS–599.

This publication predicts that the problems of agriculture and rural Americans will be changing in the future at an accelerating rate. And to keep up, agricultural economics must change too. Future research will need to take a more multidisciplinary approach and focus on practical—real world—problems.

Single copies of the publications listed here are available free from The Farm Index, Economic Research Service, Rm. 1664–So., U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see July and December issues of The Farm Index.

Farmers' Use of Pesticides in 1971: Extent of Crop Use. Paul A. Andrilenas, National Economic Analysis Division. AER–268.

Over half of all U.S. farmers use pesticides to control pests on about 50 percent of their cropland, this study concludes. Usage is broken down into the major pesticide groups: herbicides, insecticides, fungicides, nematocides, and other pesticides (defoliants, desiccants, growth regulators, miticides, and rodenticides).

The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries: Review of 1974 and Outlook for 1975. Foreign Demand and Competition Division. FAER–111.

Agricultural production was up in 1974 in the People's Republic of China (PRC), North Korea, and the Democratic Republic of Vietnam (North Vietnam), but the harvest in the Mongolian People's Republic (Mongolia) declined. According to this review, record grain crops were harvested in the PRC and North Korea, while the PRC also brought in record sugar and cotton crops. All the countries plan on more output for 1975, based on increased farm inputs.

Addresses of State experiment stations:

This ready reference list for readers wishing to order publications and source material published through State experiment stations will be updated again in July 1976.

STATE	CITY	ZIP CODE
ALABAMA	Auburn	36830
ALASKA	University of Alaska	99701
ARIZONA	Tucson	85721
ARKANSAS	Fayetteville	72701
CALIFORNIA	Berkeley	94720
	Davis	95616
	Parlier	93648
	Riverside	92502
	(Citrus Research Center)	
COLORADO	Fort Collins	80521
CONNECTICUT	New Haven	06504
	Storrs	06268
DELAWARE	Newark	19711
FLORIDA	Gainesville	32601
GEORGIA	Athens	30602
	Experiment	30212
	Tifton	31794
GUAM	Agana	96910
HAWAII	Honolulu	96822
IDAHO	Moscow	83843
ILLINOIS	Urbana	61801
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KENTUCKY	Lexington	40506
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Economic Trends

Item	Unit or Base Period	1967	1974 Year	1974 Sept.	1975 July	1975 Aug.	1975 Sept.
Prices:							
Prices received by farmers	1967=100	—	184	181	187	187	194
Crops	1967=100	—	214	219	199	201	202
Livestock and products	1967=100	—	164	155	180	179	188
Prices paid, interest, taxes and wage rates	1967=100	—	169	175	186	187	189
Family living items	1967=100	—	161	166	178	179	180
Production items	1967=100	—	172	182	190	192	194
Ratio [1]	1967=100	—	109	103	101	100	103
Wholesale prices, all commodities	1967=100	—	160.1	167.2	175.7	176.7	177.7
Industrial commodities	1967=100	—	153.8	162.9	171.2	172.2	173.1
Farm products	1967=100	—	187.7	182.7	193.7	193.2	197.1
Processed foods and feeds	1967=100	—	170.9	176.8	184.6	186.5	186.1
Consumer price index, all items	1967=100	—	147.7	151.7	162.3	162.8	163.6
Food	1967=100	—	161.7	165.0	178.6	178.1	177.8
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	161.9	164.3	178.8	177.6	176.4
Farm value	1967=100	—	177.6	178.7	200.3	197.4	202.8
Farm-retail spread	1967=100	—	152.0	155.2	165.2	165.0	159.7
Farmers' share of retail cost	Percent	—	43	42	43	43	45
Farm Income: [3]							
Volume of farm marketings	1967=100	—	111	119	114	110	128
Cash receipts from farm marketings	Million dollars	42,817	93,521	8,043	7,772	7,433	8,800
Crops	Million dollars	18,434	52,097	4,792	4,070	3,765	4,600
Livestock and products	Million dollars	24,383	41,424	3,251	3,702	3,668	4,200
Realized gross income [4]	Billion dollars	49.9	101.1	99.2	—	—	106,2
Farm production expenses [4]	Billion dollars	38.3	73.4	73.8	—	—	78.0
Realized net income [4]	Billion dollars	11.6	27.7	25.4	—	—	28.2
Agricultural Trade:							
Agricultural exports	Million dollars	—	21,994	1,382	1,532	1,601	1,610
Agricultural imports	Million dollars	—	10,247	751	762	688	945
Land Values:							
Average value per acre	Dollars	[6] 168	[7] 339	—	—	—	[8] 354
Total value of farm real estate	Billion dollars	[6] 181.9	[7] 335	—	—	—	[8] 370
Gross National Product: [4]	Billion dollars	793.9	1,397.4	1,416.3	—	—	1,497.8
Consumption	Billion dollars	492.1	876.7	901.3	—	—	970.0
Investment	Billion dollars	116.6	209.4	205.8	—	—	174.9
Government expenditures	Billion dollars	180.1	309.2	312.3	—	—	343.1
Net exports	Billion dollars	5.2	2.1	—3.1	—	—	9.8
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	629.3	1,150.5	1,178.0	1,238.9	1,255.9	1,270.3
Total retail sales, monthly rate	Million dollars	26,151	44,815	45,858	49,655	49,925	49,473
Retail sales of food group, monthly rate	Million dollars	5,759	9,980	10,363	11,282	11,167	10,961
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	[5] 85.9	[5] 86.4	[5] 85.1	[5] 85.4	[5] 85.4
Agricultural	Millions	3.8	[5] 3.5	[5] 3.5	[5] 3.4	[5] 3.5	[5] 3.5
Rate of unemployment	Percent	3.8	5.6	5.8	8.4	8.4	8.3
Workweek in manufacturing	Hours	40.6	40.0	39.9	39.4	39.7	39.8
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	4.41	4.54	4.81	4.82	4.89
Industrial Production: [5]	1967=100	—	125	126	112	114	116
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,449	81,723	85,749	82,902	85,258	86,289
Total inventories, book value end of month	Million dollars	84,655	150,404	142,975	147,189	146,583	146,497
Total new orders, monthly rate	Million dollars	46,763	83,297	86,959	83,550	85,649	85,501

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage earner and clerical worker households (including those of single workers living alone) in 1959-61—estimated monthly. [3] Annual and quarterly data on 50-State basis. [4] Annual rates seasonally adjusted third quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of Nov. 1, 1974. [8] As of March 1, 1975. [9] Beginning January 1972 data not strictly comparable with prior data because of adjustment to 1970 Census.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale and Consumer Price Index).

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